UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Southeastern Area, State and Private Forestry
2500 Shreveport Highway
Pineville, Louisiana 71360

3400
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Mr. Carl M. Flemming, Management Biologist
United States Department of the Interior
National Parks Service
Big Thicket National Preserve
P.O. Box 7408
Beaumont, Texas 77706

REPORT NO. 81-2-7

Dear Mr. Flemming:

In response to your May 13, 1980, letter requesting baseline plant pathology data for the Preserve, Paul Mistretta has prepared the enclosed packet.

The basic information is reproduced from U.S.D.A. Agriculture Handbook #165, the Index of Plant Diseases in the United States. Both host species and pathogens (disease causing agents) reported on the host in Texas are highlighted. Where an organism is noted in a neighboring state (Arkansas, Oklahoma, or Louisiana) on the host in question, the state was marked as an indication of that proximity. All pages relating at least to the genus of a host plant have been reproduced, highlighted and included.

The 600+ species of plant pathogen recorded for various hosts in Texas are contained in only 175 genera; of these, 42 genera were common pests to four or more host plants. These 42 are cross tabulated against the plant list which you submitted (in a four page table which is included) Of the species names which you submitted, information was available for all but nine though in some cases information was only available to the Host's genus level.

On the four page table the column marked PAGE is the location of that host plant in the Index. Pages marked with an asterisk indicate that only genus level information was available for the species. "No" indicates that no listing for the species (even at its genus level) was found in the Index.

The genera of pathogens break down in the following manner (unless noted these pathogens are fungi):

1) Root disease causing organisms:

Armillaria, Fomes, Ganoderma, Meloidogyne (nematode), Phymatotrichum, & Polyporus.

2) Foliage disease (spots, blisters, mildews, etc.) pathogens:

Cercospora, Cylindrosporium, Glomerella, Gnomonia, Microsphaeria, Mycosphaerella, Pestalotia, Phleospora, Phyllactinia, Phyllosticta, Physalospora, Puccinea, Rhytissma, Septoria, Stagnospora, Taphrina & Uncinula.

3) Stem Rust, Canker & gall causing organisms:

Agrobacterium (Bacterium), Diplodia, Endothia, Fusarium, Glomerella & Nectria.

4) Decay causing organisms:

Daedalea, Daldinia, Fomes, Hypoxylon, Lenzites, Polyporus, Poria, Schizophyllum, Stereum, Trametes & Valsa.

5) Mistletoes, Dodder, & other pathogens:

Cuscuta (vascular plant), Phoradendron (vascular plant) & Septobasidium.

6) Nursery or seedling blights:

Fusarium, Helicobasidium, Pestalotia & Rhizoctonia.

Damaging agents for which concern must be expressed fall in categories 1, 3 and 4. All of the root diseases (group 1) are potential problems in that they kill trees and create probable wind throw situations (and ensuing liability problems). The stem rusts, cankers, and galls group includes only a few tree killers; Fusarium spp. can kill the hosts and the Glomerella species most commoly reported cause anthracnose (a disease characterized by progressive dieback of the host). It is important to note that galls are structural flaws; trees commonly break at galls in wind storms. Among the decay organisms all genera listed (except Daldinia and Valsa) are potential sources of damage; species in each of these genera cause decay of living and/or dead trees. Decay normally results in structural weakening and eventual collapse of standing trees.

Pathogens in the second and fifth groups cause unsightly, but not normally dangerous, problems. From a visual management point of view, leaf spots are generally the most readily (public) observed problem. by the public. None of the pathogens reported in the leaf spot category are considered serious problems except as a visual management concern.

Within the sixth group are four pathogens which can cause serious damage where intensive management is practiced. I have included them in this listing only because they do cause seedling mortality in natural regeneration.

Not mentioned in the summary is the live oak decline complex. This complex, which includes at least two fungi, at least one suspected insect vector and drought, is responsible for the death of large numbers of high value oaks in an area centered around Kerr County. Oak decline has been reported from around Beaumont and is a potential problem in the Big Thicket.

Also worthy of mention here is fusiform rust. This disease begins on 1-5 year old seedlings, causes stem and branch galling and mortality. This problem is of most concern in intensive timber management, but it is present in Texas, causes mortality or, more importantly, in older trees causes galls with the associated mechanical failures.

The entomology data is currently being reviewed by members of our entomology staff and should reach your office shortly.

Hope that this information is helpful.

Sincerely,

ROBERT C. LOOMIS
Field Office Representative